

# **STRUCTURE FOR FASTENING ILLUMINATION TUBES OF A CLUSTER LAMP**

## **RELATED U.S. APPLICATIONS**

Not applicable.

## **STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT**

Not applicable.

## **REFERENCE TO MICROFICHE APPENDIX**

Not applicable.

## **FIELD OF THE INVENTION**

[0001] The present invention relates generally to a cluster lamp, and more particularly to a structure for fastening each of the illumination tubes with a mounting base of the cluster lamp.

## **BACKGROUND OF THE INVENTION**

[0002] A cluster lamp consists of a number of illumination tubes, each containing a light-emitting body. The cluster lamp is widely used for decorative purpose; nevertheless it poses a space problem. In another words, the conventional cluster lamp can not be easily stored or packaged for shipment in view of the fact that the illumination tubes are fixedly fastened with a mounting base of the conventional cluster lamp.

## **BRIEF SUMMARY OF THE INVENTION**

[0003] The primary objective of the present invention is to provide a cluster lamp with a structure for fastening a number of illumination tubes with a mounting base of the cluster lamp in such a way

that the volume of a cluster of the illumination tubes can be downsized to facilitate the storing or transporting of the cluster lamp.

[0004] The fastening structure of the present invention comprises a plurality of second pivoting seats which are arranged in the mounting base of the cluster clamp, and a first pivoting seat which is located at one end of each illumination tube. The illumination tubes are pivotally fastened with the mounting base such that they are arranged in a cluster, and that the first pivoting seat of each one of the illumination tubes is engaged with one of the second pivoting seats of the mounting base.

[0005] The features and the advantages of the present invention will be more readily understood upon a thoughtful deliberation of the following detailed description of the preferred embodiments of the present invention with reference to the accompanying drawings.

#### BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0006] FIG. 1 shows a schematic plan view of a cluster lamp embodied in the present invention.

[0007] FIG. 2 shows a perspective view of the fastening structure of a first preferred embodiment of the present invention.

[0008] FIG. 3 shows an exploded view of the fastening structure of the first preferred embodiment of the present invention.

[0009] FIG. 4 shows a longitudinal sectional view of the fastening structure of the first preferred embodiment of the present invention in combination.

[0010] FIG. 5 shows a schematic plan view of a downsized cluster lamp of the present invention.

[0011] FIG. 6 shows an exploded view of the fastening structure of a second preferred embodiment of the present invention.

[0012] FIG. 7 shows an exploded view of the fastening structure of a third preferred embodiment of the present invention.

[0013] FIG. 8 shows a schematic plan view of the fastening structure of the third preferred embodiment of the present invention at work.

### DETAILED DESCRIPTION OF THE INVENTION

[0014] As shown in FIGS. 1-4, a cluster lamp embodied in the present invention comprises a tripod 11, a mounting base 10 located at a top end of the tripod 11, and a plurality of illumination tubes 20, each being fastened with the mounting base 10 by a fastening structure denoted by the letter.

[0015] The illumination tubes 20 are provided with a light-emitting body 21 and lamp cord 22. The illumination tubes 20 are located at a bottom end in a socket portion 31 of a connection member 30. The connection member 30 is further provided with a fastening portion 32 which is fastened to the mounting base 10.

[0016] The socket portion 31 of the connection member 30 is provided with a first pivoting seat 33 which is provided with a first pivoting hole 35, and a first toothed edge 51. The fastening portion 32 of the connection member 30 is provided with a second pivoting seat 34 which is provided with a pivoting hole 36 and a second toothed edge 52 engageable with the first toothed edge 51.

[0017] Each illumination tube 20 is pivotally fastened with the mounting base 10 in such a manner that the first pivoting seat 33 is pivoted with the second pivoting seat 34 of the mounting base 10 by a pivot 40 which is put through the first pivoting hole 35 and the second pivoting hole 36 in conjunction with a spring 53 and a stop ring 54. The pivot 40 is fastened at one end with a nut 41.

Meanwhile, the first toothed edge 51 of the first pivoting seat 33 is engaged with the second toothed edge 52 of the second pivoting seat 34.

[0018] In light of the illumination tubes 20 being fastened pivotally with the mounting base 10, the illumination tubes 20 can be arranged in such a manner that a cluster volume of the illumination tubes 20 is downsized, as illustrated in FIG. 5.

[0019] As shown in FIG. 4, the first pivoting hole 35 of the first pivoting seat 33 is provided at one end with a shoulder 37. The spring 53 is fitted over the pivot 40 such that one end of the spring 53 is stopped by the shoulder 37, and that the other end of the spring 53 is stopped by the stop ring 54 which is in turn stopped by the head of the pivot 40. The spring 53 is used to provide a spring force to effect the locating of the first toothed edge 51 each time after the first toothed edge 51 is turned in relation to the second toothed edge 52.

[0020] As shown in FIG. 6, the first pivoting seat 33 of the illumination tubes 20 is provided with a locating knob 62 in place of the first toothed edge 51. Accordingly, the second pivoting seats 34 of the mounting base 10 are provided with a plurality of locating slots 61 in place of the second toothed edge 52. The first pivoting seat 33 and the second pivoting seat 34 are pivoted together such that the locating knob 62 is located in one of the locating slots 61 of the second pivoting seat 34. Each time when the first pivoting seat 33 is turned in relation to the second pivoting seat 34, the first pivoting seat 33 is located by means of the locating knob 62, which is located in one of the locating slots 61 of the second pivoting seat 34. In another words, each time when the illumination tubes 20 are turned in relation to the mounting base 10, the illumination tubes 20 can be located by means of the locating knob 62 of the first pivoting seat 33 of the illumination tubes 20.

**[0021]** As shown in FIGS. 7 and 8, the first pivoting seat 33 of the illumination tubes 20 is provided with a plurality of notches 71, whereas the second pivoting seats 34 of the mounting base 10 are provided with a tongue 72. As the first pivoting seat 33 is turned in relation to the second pivoting seat 34, the first pivoting seat 33 can be located by the tongue 72 whose tip engages one of the notches 71 of the first pivoting seat 33 of one of the illumination tubes 20, as illustrated in FIG. 8. In addition, an elastic ring 73 is disposed between the first pivoting seat 33 and the second pivoting seat 34. The elastic ring 73 is intended to provide the fastening structure of the present invention with an appropriate tightness in light of the lacking of the spring 53.

**[0022]** The embodiments of the present invention described above are to be regarded in all respects as being illustrative and nonrestrictive. Accordingly, the present invention may be embodied in other specific forms without deviating from the spirit thereof. The present invention is therefore to be limited only by the scope of the following claims.